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[54] **SURROUND-SOUND SYSTEM WITH MOTION PICTURE SOUNDTRACK TIMBRE CORRECTION, SURROUND SOUND CHANNEL TIMBRE CORRECTION, DEFINED LOUDSPEAKER DIRECTIONALITY, AND REDUCED COMB-FILTER EFFECTS**

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[*] Notice: The portion of the term of this patent subsequent to Aug. 29, 2008 has been disclaimed.

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Related U.S. Application Data

[63] Continuation of Ser. No. 366,991, Jun. 20, 1989, Pat. No. 5,043,970, which is a continuation-in-part of Ser. No. 141,570, Jan. 6, 1988, abandoned.

[51] Int. Cl.⁵ G11B 20/02

[52] U.S. Cl. 369/89; 381/20

[58] Field of Search 369/89-92;
381/17-22, 98, 103, 153, 155

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[57]

ABSTRACT

Spectral imbalance (alteration in timbre) when playing home video versions of motion pictures having soundtrack equalized for playback in a room whose room-loudspeaker system is aligned to the standard motion picture theater X-curve is overcome by timbre correction which compensates for the X-curve equalization. Surround-sound home playback of motion pictures is enhanced by employing main channel loudspeakers that produce generally direct sound fields and surround channel loudspeakers that produce generally diffuse sound fields. In addition, the reproduced surround-sound channel is further enhanced by decreasing the interaural cross-correlation of the surround-sound channel sound field and by reducing comb filtering effects in the surround-sound channel at listening positions within the room, preferably by introducing slight pitch shifting in the signals applied to multiple surround loudspeakers. Preferably, further equalization is applied to the reproduced surround channel to compensate for the differences in listener perceived timbre between the surround-sound channel and the main channels.

67 Claims, 5 Drawing Sheets

